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Memorandum

From: Steve Willis
To: Wayne Miller
Date: November 9, 2016
Subject: Site visit to observe well drilling activities at Former Williams AFB Site ST012.

Wayne:

This memo summarizes my visits to Site ST012 conducted on Tuesday, November 8 and Wednesday, November 9.

When I arrived at the site at 9 am Tuesday, two drilling rigs were operating on the Army property west of site ST012. Well LSZ57, located in the landscaped area south of the main building, had attained a depth of 136-ft. PID readings to that point were generally <5 ppm and I did not observe any evidence of hydrocarbon contamination. PID readings began to increase at the 142-ft. interval, where the reading was 40 ppm. A dye test was conducted on soil from the 142 – 143-ft. interval, and the result was negative. This was also where water was encountered. The PID reading dropped to 11.7 ppm at 146-ft, then increased to 55.3 ppm at 148-ft., 69.9 ppm at 150-ft., 65.5 ppm at 152-ft., and 74.1 ppm at 154-ft., before dropping to 44.3 ppm at 156-ft.

I then moved to the site of soil boring SB19 on the north side of the building. The boring had been drilled to 196-ft. and the drillers were stopped for lunch. Vadose zone cuttings from approximately 20-ft. to 40-ft. bgs exhibited a noticeable hydrocarbon odor, and a high PID concentration of 305 ppm at 35-ft. bgs. AMEC field personnel collected soil samples from this interval to send out for lab analysis. The remaining soil cuttings to a depth of 196-ft. did not exhibit evidence of hydrocarbon impact, and PID readings were generally <5 ppm. As a result of the low PID readings, AMEC planned to convert this boring to well LSZ61 as an upgradient compliance point.

When I arrived at the site on Wednesday, November 9, I met Bill Hughes from

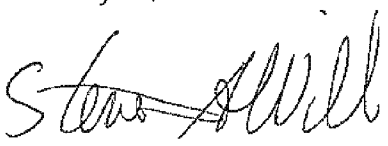
Cherokee Nation Environmental Solutions, who was there to observe activities as the Air force representative. Well LSZ57 had been drilled to 251-ft. based on relatively elevated PID readings in the LSZ, and AMEC field personnel were waiting for word from their supervisors on how to proceed. PID readings in the LPZ and LSZ between 205 and 240-ft. ranged from 26.1 ppm at 235-ft to 69.1 ppm at 205-ft. Readings decreased to 6.3 ppm at 245-ft., and 5.2 ppm at 250-ft. I did not detect any hydrocarbon odors in any of the UWBZ, LPZ, or LSZ cuttings. Negative dye tests were obtained on samples collected at 88.5, 125, 142.4, and 222.5-ft. The boring was extended to a total depth of 256-ft., where the PID reading was 1.9 ppm.

Boring SB19/LSZ61 was completed to a total depth of 245-ft. PID concentrations began to increase below 210-ft., with readings of 128 ppm at 215-ft., 1179 ppm at 218-ft., and 1375 ppm at 220-ft. Positive dye tests were recorded at 215, 218, and 220-ft. PID readings decreased to 12 ppm at 230-ft., 10 ppm at 232-ft., 65 ppm at 235-ft., and <5 ppm at 240 and 245-ft. Based on the PID readings and AMEC's criteria for step-out borings, the boring was backfilled without constructing a well, and a location for an additional step-out boring will be determined.

According to AMEC field personnel, all eductor pumps have been removed from the interior wells and they will begin installing the extraction pumps in the proposed extraction wells.

Please contact me if you have comments or questions regarding this memo.

Thank you,



SITE PHOTOS

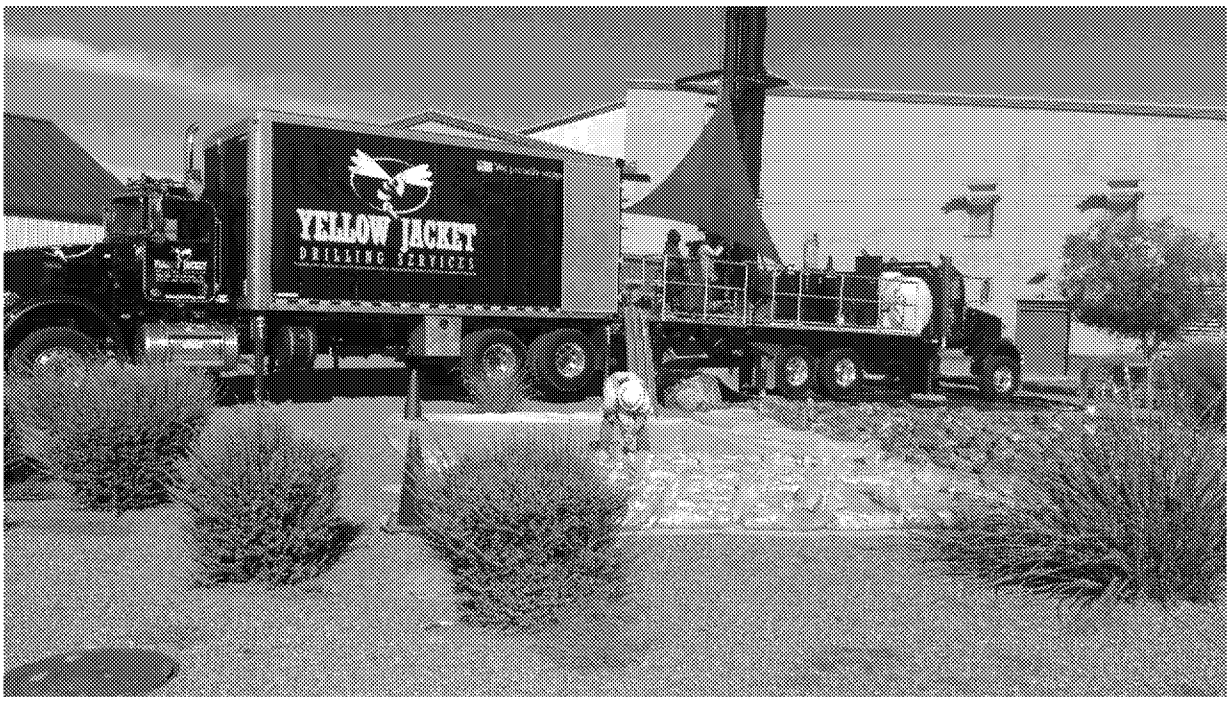


Photo 1. Drill rig set up on well LSZ57.

Photo 2. Negative dye test at 142.5-ft. in boring/well LSZ57.

Photo 3. Negative dye test at 222.5-ft. in boring/well LSZ57.

Photo 4. Drill rig set up on boring SB19/LSZ61.

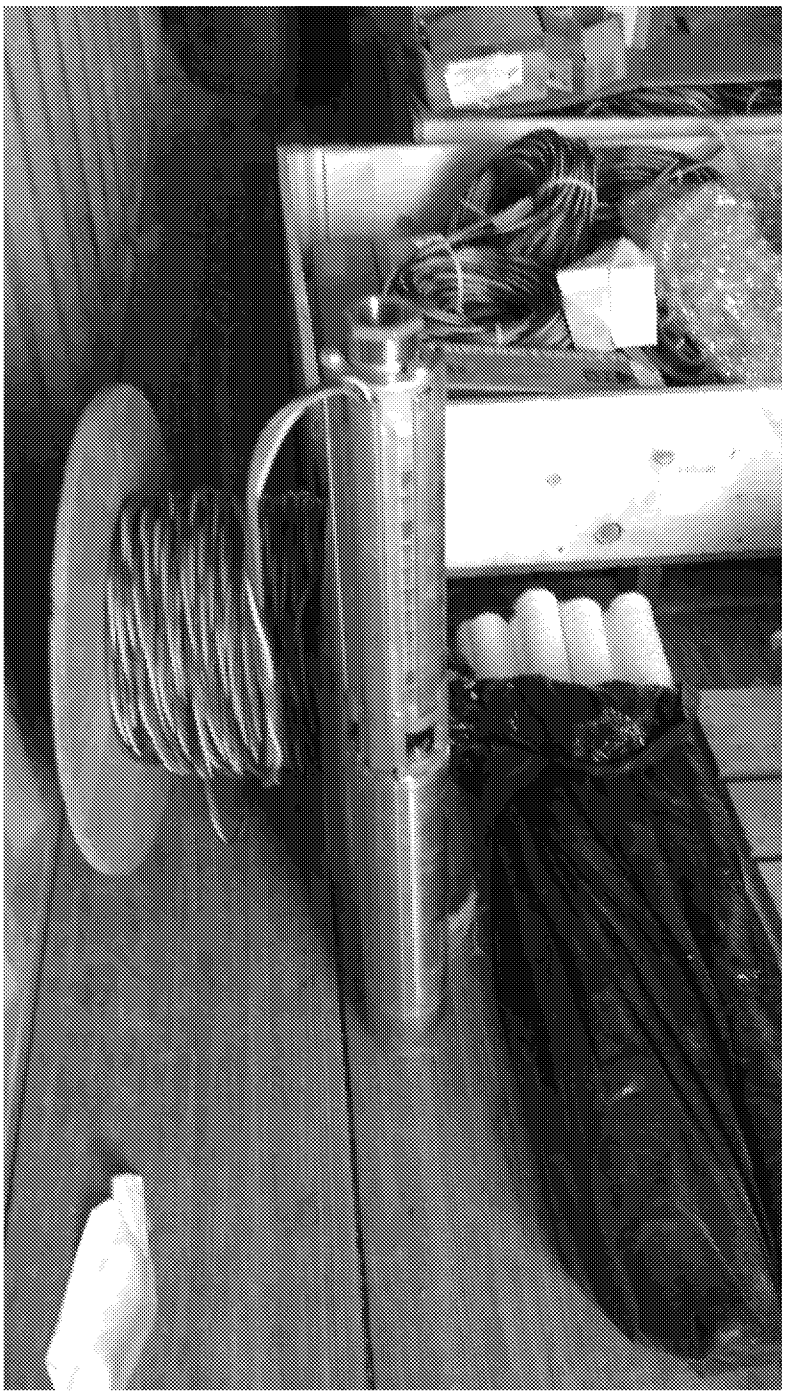


Photo 5. An example of a submersible pump to be installed for groundwater extraction.

Photo 6. Heat shrouds that will be used to protect the groundwater extraction pumps.